The Challenge of Cytology Proficiency Testing

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A recent symposium held in Atlanta and sponsored by the Centers for Disease Control and Prevention, the College of American Pathologists, and the Cytopathology Education Consortium (American Society for Cytotechnology, American Society of Clinical Pathologists, and American Society of Cytology) looked broadly at issues related to cytology proficiency testing (PT). The subject was examined thoroughly-from the historical perspective, through currently used techniques for PT and quality assurance, to an exciting look at the future with its evolving new technology. The symposium presentations are published in this issue of Laboratory Medicine and provide a useful reference for this important and timely subject. Summary discussions of each symposium section follow this editorial. While the stimulus for the scientific meeting came from the frustrating, unsuccessful effort to launch a national cytology PT program, benefits from the deliberations reach far beyond the federal regulatory needs.

The inability to implement a national cytology PT program as mandated by the Clinical Laboratory Improvement Amendments of 1988 (CLIA) has required us to reexamine all possible alternatives. This "rethink" affords opportunities to explore new and innovative approaches to the way proficiency is measured in the cytology field-for education, certification, or regulation

Background. CLIA, as enacted by Congress, has had far-reaching effects on laboratory medicine in the United States. CLIA in particular has significantly affected the practice of cytology. Some sections of the law address cytology specifically. Among the requirements are the establishment of personnel standards, workload limits and quality control measures, and individual successful participation in a cytology PT program.

Implementation of a cytology PT program on a national scale has proven to be a difficult task, even though smaller programs are in operation. New York State has carried out state regulatory cytology PT for 25 years, and Maryland established a program in 1990. In addition, New York City has conducted regulatory cytology PT for approximately 14 years. During the process of developing regulations to implement the CLIA requirement for cytology PT, the responsible federal agencies relied heavily on experience from these programs to establish a national model.

The regulations for CLIA-mandated cytology PT outline a program to be conducted on- site, using carefully referenced glass slides. One difficulty in implementing this program is collecting the requisite number of high-quality glass slides representing the appropriate diagnostic categories. The cost of collecting and referencing the glass slides is very high, and legal and logistical barriers to collection exist as well. Given these constraints, the time needed to assemble and reference a sufficient number of slides for a national program would be considerable. For these reasons, it has proven to be an impossible task to collect and reference sufficient glass slides to conduct PT on a national scale.

Of the many insights and ideas that were discussed during the symposium, the following stand out in my mind:

Evaluation. Although the value of PT as an educational tool is widely recognized, we do not know the extent to which PT measures true performance. The implementation of national programs will allow us to evaluate the effectiveness of this tool, and it will be important to design and conduct studies to carry out this evaluation.

Source of screening errors. A PT program that accurately reflects work performance needs to evaluate both functions of cytology testing: screening or location (the scanning of slides to find abnormal cells), and interpretation (identification of abnormal cells). While it is relatively easy to design an examination that tests interpretive skills, it is much more difficult to detect problems in locating abnormal cells. Inadequate locator functions primarily are produced by too great a workload and, consequently, insufficient time to examine a given slide; distractions or failure to concentrate; and poor screening techniques. CLIA regulations for workload limits and quality assurance have addressed the first problem. Cytology PT can test screening techniques. It is questionable, however, whether one can test for distractibility using cytology PT because normal working conditions can not be duplicated exactly.

Use of facsimiles. Examinations to test for interpretive skills can be rapidly designed and implemented. Professional organizations and universities currently are using color transparencies or computer-reproduced images, at relatively low cost and with excellent standardization. At present, however, examinations using traditional glass slides are the only means available for testing locator skills.

The future. An area of great promise appears to be digitized computer imaging. Several systems for producing computer images of cells from cytology slides have been developed. Computers can simulate the actual scanning of slides. Development of a cytology PT system using this technology would offer the considerable advantages of standardized tests; the measurement of both locator and interpretive skills; and elimination of glass slides as the test medium, resulting in considerable cost savings.

Multiple approaches. The idea of developing a variety of cytology PT programs for meeting CLIA implementation needs has considerable merit. Multiple approaches explored for a period of years will begin to yield data about what kinds of programs are most effective and how well the programs reflect true performance.

Effective alternate approaches using facsimiles in lieu of glass slides can be put in place fairly and quickly. In addition, there is need to stimulate the development of digitized computer imaging. In my opinion, this is the future of cytology PT.

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